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Olesen, Kristian; Harder, Henrik

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## **Challenges of Climate Change seen in a Danish regional spatial perspective, the case of Eastern Jutland and the Copenhagen Fingerplan 2007, status 2008**

*Kristian Olesen, research assistant, Department of Development and Planning, Aalborg University*

*Henrik Harder, associate professor, Department of Architecture and Design, Aalborg University*

### **Abstract**

In the recent Danish national planning report, a part of Denmark called 'Eastern Jutland' with approximate 1.2 million people (23 % of the population in Denmark) was articulated as a functional integrated urban region with major spatial challenges in the future. The key issue in spatial planning for Eastern Jutland concerns a classical planning conflict between preserving the high quality of landscape and maintaining the divide between the countryside and urban development on one hand, and on the other hand taking the shortcomings of the infrastructure into consideration and maintaining economic development. In order to deal with these spatial issues the Ministry of the Environment and the 17 municipalities in the urban region have entered a participatory planning process. First phase of the process was to develop a common vision for the urban region. This vision was published in early September 2008.

This vision is rather broadly formulated and it does not consider the relationship between new infrastructure investments and urban development sufficiently. In a climate change perspective, this discussion is very important as careful considerations on how to link new urban development to public transport investments is crucial in encouraging the public to use more sustainable transport forms. However, recent modelling of commuting in Eastern Jutland shows that even by investing heavily in public transport infrastructure (and increase the number of railway stations) only 2 % of the internal commuting in the urban region will be carried out by train.

This suggests that investments in public transportation and a participatory planning process are not enough to fulfil climate goals. In order to reach the Kyoto goals and the Danish national goals for CO<sub>2</sub> reductions, it is seriously needed to think about how we are to spatially organize ourselves in future, not just in the case of "Eastern Jutland", but across the entire Danish territory and in rest of Western Europe where deregulation of the national planning systems have reduced the possibilities to address climate changes in regional and local levels in the planning processes.

## **1. INTRODUCTION**

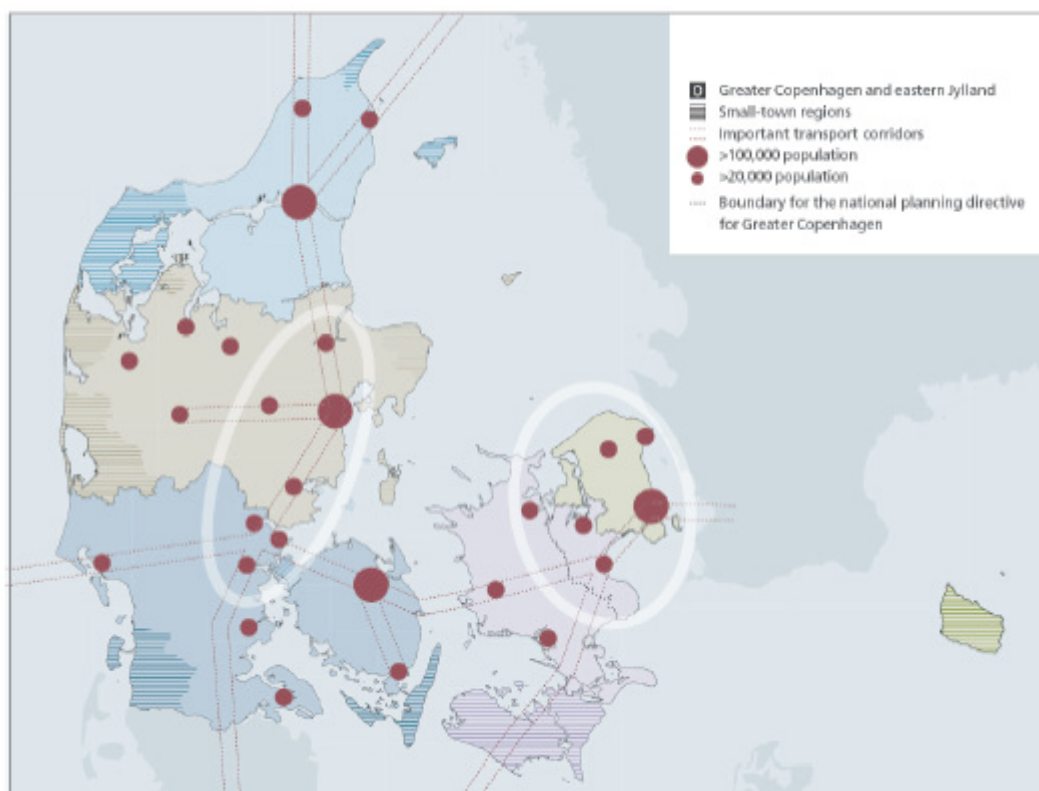
*"The world is opening up – spatial planning should take part in preparing us for changes."*  
(Ministry of the Environment 2006b, p. 10 – own translation)

Society is changing as a consequence of increased globalisation and mobility, which means we have to revise our perception of society in order to deal with the challenges we are to face in the future. We are in Denmark in a period of adjustment, trying to adjust the way we have structured our society, so it becomes more flexible and able to respond to the changes happening around us. Globalisation and increased mobility increase the demands for spatial planning. One of the challenges at the level of urban regions is to

promote urban growth with public transportation. This is important, not at least in a climate change perspective, where the extensive use of private cars makes it difficult to reach climate goals in the transportation section. Furthermore, discussions on reducing the use of private cars have so far only gained limited attention, e.g. road pricing is only scarcely mentioned in the Tax Commission's report from February 2009 (Tax Commission 2009).

The national planning report from 2006 is a response to the new challenges for spatial planning in Denmark. Denmark is right now in a period of spatial restructuring. The national planning act and the administrative boundaries have been adjusted in the structural reform in 2007, which led to an abolishment of the counties and merging of municipalities, which became authority for spatial planning in both urban and rural areas.

The 'new map of Denmark' published in the national planning report from 2006 stresses that Denmark contains two metropolitan regions, see Figure 1. Initiatives have been taken to strengthen the spatial planning in these two areas. The Ministry of the Environment has issued a national planning directive in the Copenhagen Area, which can be seen as an update of the 'Fingerplan' from 1947 (Ministry of the Environment 2007b). The spatial planning in Eastern Jutland has not an existing plan to build on as in the Copenhagen Area. A whole new planning process involving the Ministry of the Environment and the 17 municipalities in Eastern Jutland has therefore been initiated.



**Figure 1: The new map of Denmark highlighting the metropolitan areas of Greater Copenhagen and Eastern Jutland (Ministry of the Environment 2006a, p.15)**

The aim of this paper is to discuss the outcome of the strategy formation process in Eastern Jutland in its potential to shape spatial structures in society. This discussion is put in a historical perspective by drawing

lines of comparison to the 1940s when the famous 'Fingerplan' for Copenhagen was produced. As it later turned out, the icon of the 'hand' has been the overall structure for spatial planning in Copenhagen in more than 50 years.

First the two cases are briefly presented. Then it is discussed to what extent the strategy formation process in Eastern Jutland has the potential to produce a similar outcome with such strong transformative power as the Fingerplan.

## **2. Two Contexts, Two Processes, Same Aim**

This section presents two attempts to carry out strategic spatial planning at the level of urban regions in Denmark. First attempt was carried out in the Copenhagen Area in the 1940s. The second attempt began in the beginning of 2008 in Eastern Jutland. Both processes had the same aim: how to link infrastructure routes and urban development together.

### **2.1 The Fingerplan of the Copenhagen Area**

In Denmark, great efforts have been made to control urban development by one simple plan, the Fingerplan for Copenhagen. The Fingerplan was published in 1947 and was inspired by ideas within the British town planning tradition, developed prior to and during the Second World War. (Bredsdorff et al., 1949).

The development of the Fingerplan was a private enterprise. The story of how the plan came about is in itself fascinating and quite unique, just as the very plan. The story told by Jensen (1991) highlights especially two persons as having a crucial role in the process of developing the famous plan. Steen Eiler Rasmussen, the chairman of Dansk Byplanlaboratorium [Danish City Planning Laboratory], took the initiative to resume the work on the plan after it for various reasons had been sat on hold. Peter Bredsdorff and his team, hired to produce the plan, published the Fingerplan as a 'discussion paper', when they realised that there was no political support to pass it. This meant that the team was able to write more freely on controversial issues and bring forward a proposal that was ahead of its time. (Jensen 1991)

This also meant that the subsequent official plan, the '1947 regional plan for the structure of Copenhagen and the location of different land uses', based on the Fingerplan never attained legal status (Bredsdorff et al. 1949) until it in 2007 was turned into a national planning directive (Ministry of the Environment 2007b). Nevertheless, the Fingerplan of Copenhagen became the focal point of all further discussions on traffic and urban development in the Greater Copenhagen Area.

The simple, unique, and easily understood graphical expression, in the form of the Copenhagen Area resembling a hand with spread fingers, was a crucial contributory cause to this. Particularly, the five fingers of the Fingerplan, in which urban development and most importantly infrastructure lines such as railways and roads were to be located, have up until today been the reference point of many individual discussions and have lately become a part of good practice in terms of sustainable planning in Denmark as well as internationally.

The thoughts behind the Fingerplan were to locate urban growth within the fingers and thereby ensure close proximity to existing and future public transport lines (mainly S-train lines). The land between the

fingers was on the contrary to be protected from any urban development. Protecting the recreational areas between the fingers was thus a crucial part of the plan. The overall intentions of the plan have been pursued until today, although the fingers have slowly grown thicker and longer than originally intended (Gaardmand 1993).

Later it has been discussed whether the original principles of the Fingerplan have been complied with. The original intention was that public transportation combined with bicycling would be able to cover most of the future transport needs, and that this would be supported by careful planning of city growth and infrastructure (Gaardmand 1993). This is clearly expressed in the following quotation:

*"Since its first regional plan (Fingerplan) in 1947, Copenhagen has attempted to restrict new urban development to settlements along five existing railway lines, protecting the green space between them. There is a greater emphasis in the new regional plan produced in 1989, and in the revisions made in 1993, on the location of work places, especially offices and others generating personal transport, at high accessibility points through the identification of priority areas for urban development or renewal near railway stations, especially stations in the radial railway system that provide good bus connections. New investments, including a light rail system to a new urban development of 3000 ha south of the centre, are being co-ordinated with this land use plan. Consistently maintaining such a concept overtime is an essential condition for success." (European Commission 1996, p.219)*

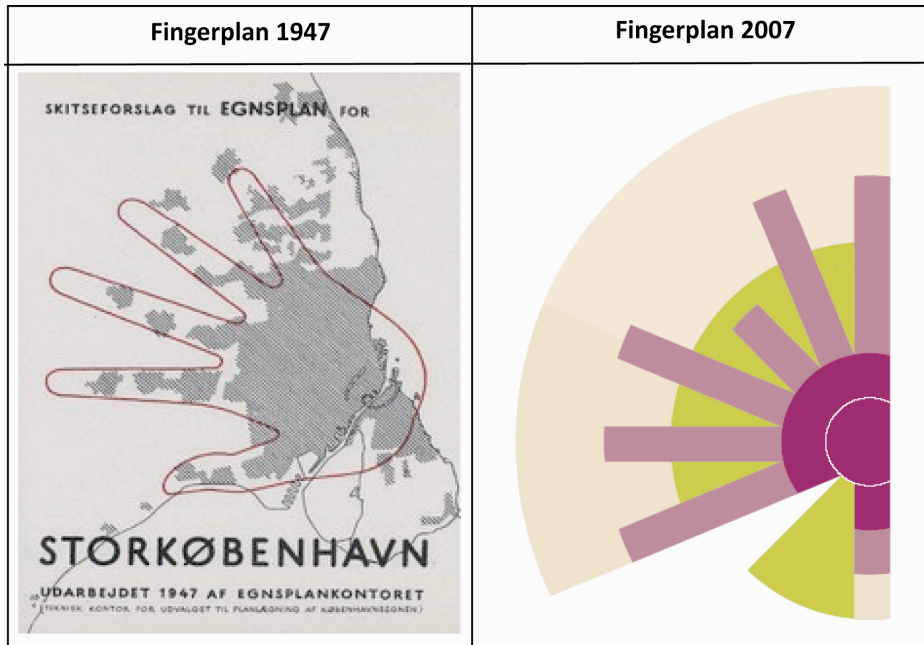
Even though the Fingerplan was originally meant as a structure for rational development of urban areas within the Copenhagen Area, the plan has been solid enough to accommodate discussions of sustainable development. Furthermore, the plan has in several contexts been identified as a structure which can support future urban development that contributes to reduce carbon dioxide emissions in the future:

*"Environmental impact assessments shows that if the Fingerplan 2007 is implemented it can be expected to trigger a range of mainly positive environmental effects compared to the 0-alternative. The 0-alternative describes the development which can be expected, if the Fingerplan 2007 is not adopted and a national planning directive is adopted instead, which only have very vague requirements for ensuring a regional coordination of urban development and infrastructure [...] The plan contains an adjustment of the principle of station-proximity which is deemed to have a positive effect when it comes to limiting the growth within car transportation and thus limiting the CO<sub>2</sub>-emission as well as other environmental consequences. The traffic-related and environmental effects will be intensified in interaction with other means, just as the use of other means will have intensified effects by interaction with the adjusted principle of station-proximity. At the same time, the Fingerplan 2007 contributes to make the urban area more sturdy when it comes to changes in petrol-prices, taxes etc. The effects posit that the principle of station-proximity is enforced to a greater extent than so far." (Ministry of the Environment 2007a – authors' translation)*

As mentioned, the Fingerplan of 1947 was never officially approved by any executive Danish planning authorities. However, it is suggested by Gaardmand (1993) that the Fingerplan of 1947 made it possible to pass the Danish 'Act of urban planning of April 23<sup>rd</sup> 1947' by which it became possible to keep areas clear of urban development.

Today, the ideas behind the Fingerplan of 1947 have been maintained in the latest plan for the Copenhagen Area, the Fingerplan of 2007. Besides maintaining the idea of minimizing urban sprawl, the Fingerplan of

2007 also contains arguments for reducing CO<sub>2</sub>-emissions etc. The Fingerplan of 2007 was published as a national planning directive and an environmental impact assessment was carried out according to the law of environmental assessment of plans and programs (law number 326 of May 5<sup>th</sup> 2004). (Ministry of the Environment 2007b)



**Figure 2: To the right: The Fingerplan of Copenhagen from 1947 (District Planning Office 1947). To the left: The Outline of the Fingerplan of 2007 (Ministry of the Environment 2007b, p.15).**

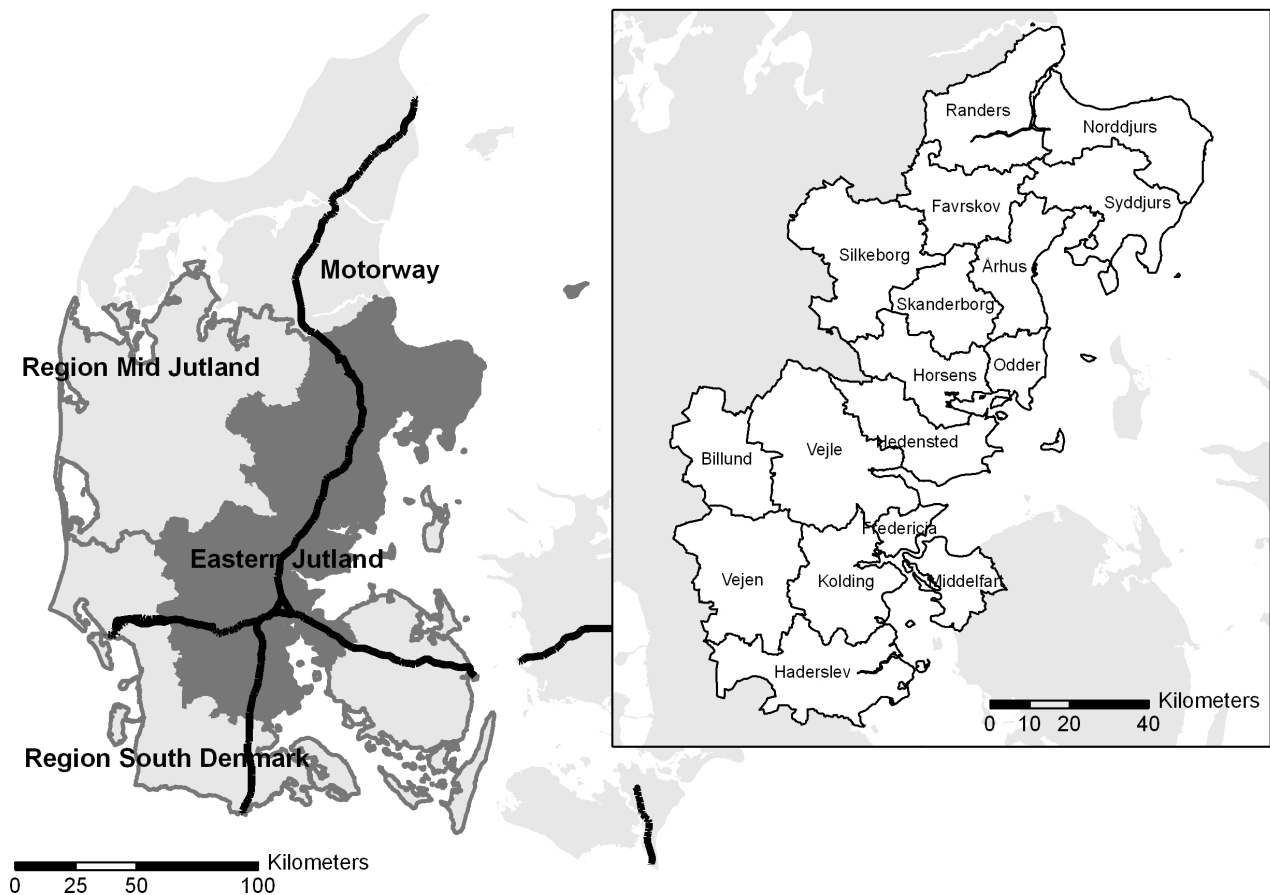
## 2.2 The Strategy Formation Process in Eastern Jutland

Eastern Jutland is located in Western Denmark on the peninsula of Jutland. The urban region consists of 17 municipalities including Århus Municipality, containing Denmark's second largest city Århus. The urban region crosses the two newly established (2007) administrative regions of Region Mid Jutland and Region South Denmark, see Figure 3.

The two major infrastructure lines in Denmark, the motorway and the national railway, transect the urban region of Eastern Jutland. In fact, Eastern Jutland has in the last couple of years been articulated as 'the urban corridor of Eastern Jutland' (det østjyske bybånd). Hovgesen et al. (2005) argue by analysing commuter data that Eastern Jutland is developing towards a functional integrated urban region. It is also been argued that an increasing urbanisation of the urban corridor has taken place in the last 10 years (Hovgesen et al. 2005).

Two different aspects of the structural reform in 2007 led to increased national attention towards Eastern Jutland. Firstly, the Danish municipalities became the planning authority for the rural areas (they had previously only been authority for spatial planning in urban areas). With the increasing growth and urbanisation in Eastern Jutland, the Ministry of the Environment became increasingly worried that the future urban development in Eastern Jutland might take place at the expense of the landscape and the demarcation between the urban and rural areas.

Secondly, the Danish municipalities were merged in an attempt to make the municipal boundaries fit the commuter areas or labour markets. However, the merging of municipalities was built on voluntary arrangements, which meant that the municipality boundaries are more based on politics than functionality. This led to a need for a new understanding of spatial planning, as something that is not only limited to administrative boundaries, but something that might exceed the defined boundaries in order to be effective and meaningful. The strategy formation process in Eastern Jutland is the first example of this new planning approach.



**Figure 3: Map 1 illustrates Eastern Jutland and the two administrative regions. Map 2 illustrates the 17 municipalities in Eastern Jutland and their organisation in a northern and southern coalition.**

The strategy formation process in Eastern Jutland began in the beginning of 2008. A new organisation was created to take the process through its first phase aiming at developing a common vision for the urban region, see Figure 4. Consultants were hired to carry out three functional analyses investigating the business and population, interaction and infrastructure, and the landscape characteristics in Eastern Jutland. The results from the three analyses created the foundation for the steering group's task of preparing a common vision for Eastern Jutland.

The process had a very limited time frame. The steering group presented the common vision to the political ownership group in the beginning of September 2008, and the vision was at the same meeting accepted by the mayors of the municipalities in Eastern Jutland. As a result of this very limited time frame,

the common vision is rather broadly formulated, and it does only sporadically deal with the issues it was set out to. Several reasons for this exists, we will in the next section highlight some of them.

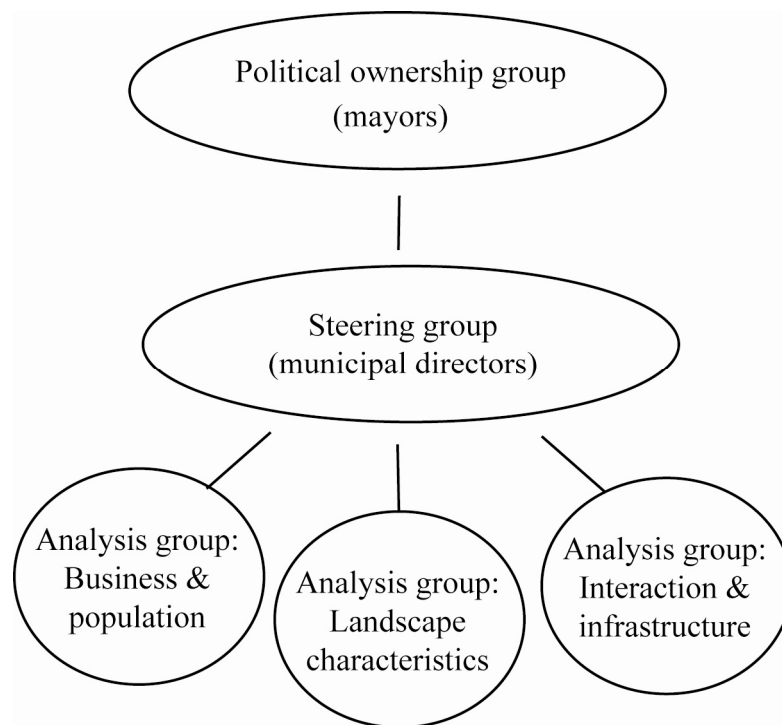


Figure 4: The organisational structure of phase one in the strategy formation process in Eastern Jutland

### 3. Broad Consensus on Nothing or Everything?

Healey (2007) argues that strategic spatial planning is carried out differently today than 50 years ago. Today the strategy formation process has been undermined by governance activity, which means that strategy-making can no longer be seen as a linear process, but has become much more complex and much more focused on the process rather than the content of the spatial strategy.

Healey (2007) suggests a framework for evaluating and designing strategy formation processes consisting of four key dimensions: filtering processes, focusing and framing, generating mobilising force, and generating transformative force. This framework has been used to analyse the strategy formation process in Eastern Jutland.

The strategy formation process in Eastern Jutland was analysed through interviews with the Agency of Spatial and Environmental Planning and the municipal directors/planning officers from Kolding, Horsens, Århus and Randers Municipalities. All interviews were semi-structured, and the interview guides were structured according to the framework mentioned above. In the rest of this section, we present the results of this analysis.

#### 3.1 Filtering Processes

The first element in the analysis of the strategy formation process in Eastern Jutland is filtering. In the case of Eastern Jutland, filtering is understood as the initial filtering carried out in connection to the setup of the



organisational structure. The organisational structure of the strategy formation process can be seen as a filtering of 'who' and 'what' to include in the process.

The strategy formation process has been carried out as a cooperative process between the municipalities in Eastern Jutland and the Ministry of the Environment. No other actors besides consultants have been involved in the process. The administrative regions have not been directly involved in the process, as they do not have any formal planning authority. The municipalities in Eastern Jutland are pleased that the Ministry of the Environment has chosen a cooperative model for Eastern Jutland, instead of issuing a national planning directive as in the Copenhagen Area. The municipalities highlight that the political structure in Eastern Jutland is more efficient after the structural reform, which would increase the chance of reaching consensus through a cooperative process.

Another filtering carried out is the demarcation of the urban region of Eastern Jutland. The municipalities highlight that it is very important that it is the Ministry of the Environment that have carried out this filtering, in order to maintain the legitimacy of the process. In addition, it is highlighted that the demarcation of the urban region is based on commuter patterns which also adds to the legitimacy of the initial filtering carried out.

Initial decisions were also made on what the main points to discuss in the process should be. It was decided to hire consultants to carry out three functional analyses, see Figure 4. These analyses were to build the foundation for framing a common vision for Eastern Jutland. As we shall see in the next section, these analyses were quite decisive in determining the content of the common vision.

### **3.2 Focusing & Framing**

The second element in the framework is to research focusing and framing of the spatial strategy for Eastern Jutland. In the case of Eastern Jutland, focusing is understood as the municipalities' motives and reasons for participating in the strategy formation process, whilst framing is explored through a comparison of the municipalities' different stories with the aim of identifying key elements, which can constitute a strategic frame for Eastern Jutland.

By comparing the four stories from the selected municipalities, it was obvious that a strategic framing mainly could be developed around future infrastructure investments. The municipalities all agreed that new infrastructure investments were needed in Eastern Jutland. Infrastructure was therefore expected to play a huge role in the framing of the common vision. However, the municipalities were not able to prioritise between different types of infrastructure investments between themselves. Instead, they have just made a 'shopping list' indicating they wanted everything. This means that the vision will have little impact on the National Government's investment plan describing future infrastructure investments in Denmark until 2030. This was actually one of the main incentives for the municipalities to participate in the strategy formation process in the first place.

In general, the municipalities acknowledged a need to preserve the landscape, and as an analysis of the landscape characteristics in Eastern Jutland was carried out as part of the process, it was expected that preservation of the landscape would play a role in framing the common vision for Eastern Jutland. Preservation of the landscape is not given as much attention as infrastructure in the common vision. A reason for this might be that the municipalities are afraid of increased regulation and centralisation. The

municipalities highlighted in the interviews that they to a large extent are able to take care of landscape related interests themselves.

The last element in the analysis was to explore a possible strategic framing of the future urban development in Eastern Jutland. The analysis revealed that the municipalities seem to have too different approaches to their future urban development to be able to reach a consensus on this issue. Some municipalities locate new urban districts in close proximity to the motorway, whilst others highlight concepts such as revitalisation and dense cities as key. This might be one of the reasons why this issue more or less is absent in the vision. Instead, urban development is mentioned as something which is prioritised in the further work (phase two). Here the aim is to develop a common urban development/infrastructure strategy. Whether it is possible to produce such a strategy through a cooperative process and what such a strategy might look like is still to be seen, however from the interviewed municipalities and this research the prospects of this are not so bright.

### **3.3 Generating Mobilising & Transformative Force**

The third and fourth element in the framework is to generate mobilising and transformative force for the strategic frame created. In the case of strategy formation in Eastern Jutland, mobilising force for the spatial strategy can be generated, if the municipalities are able to reach consensus on a common vision for Eastern Jutland. Transformative force can be generated by implementing the strategic spatial plan for Eastern Jutland into the municipal planning.

The municipalities have a lot to gain from reaching consensus on a common vision for Eastern Jutland. They stand much stronger in their attempt to attract future infrastructure investments if they are able to unite and speak with a common voice. Consensus on a common vision for Eastern Jutland would also be a manifestation of Eastern Jutland as an urban region, and an important step towards creating a platform where future spatial strategies can be formed.

The municipalities were therefore under a lot of pressure to reach consensus, both from themselves, but also from the Ministry of the Environment, which had an option of issuing a national planning directive, if the municipalities were not able to reach consensus. The municipalities highlighted that the pressure was there, although the Ministry of the Environment stated that a national planning directive was not an option at the moment.

The conclusion of the analysis was therefore that it was highly likely that the municipalities would be able to reach a consensus. The question more seemed to be what they would be able to reach consensus on. It was expected that the huge competition between the municipalities in Eastern Jutland would set limitations for the strategy formation process and the content of a common vision.

This hypothesis turned out to be right. The common vision is rather broadly formulated and it does only deal with the issues analysed on a very general level. The vision contains very few true action points and none of these are described how they are to be reached. Even in relation to infrastructure, which is the issue that has gained most attention during the period of analysis, is the output disappointing. Here the vision more has the character of describing all possible alternatives in developing the infrastructure routes in Eastern Jutland than prioritising some transport modes or infrastructures over others.

In a climate change perspective, the vision is also largely disappointing. The word climate is not mentioned once in the vision. Investments in public transportation are put next to investments to upgrade the existing road network. The issue of how to link future infrastructure investments to urban development is not dealt with in the vision, but is instead placed as one of the points to deal with in the following work.

The vision seems to be a consequence of consensus on the lowest common denominator. From the vision it is not clear in which direction Eastern Jutland is to develop in the future, or how the different elements in the vision are to be reached. Some places they even seem to be contradictory. There appears to be very little 'strategic' about the vision as it just presents a 'shopping list' of things that would be nice to have in the future without making any decisions on which elements are to be prioritised over others. The conclusion is thus that the vision will generate very little transformative force if it is not translated into a more action-oriented approach in the second phase of the process.

#### **4. SPATIAL PLANNING OR INFRASTRUCTURE LOBBYISM?**

Strategic spatial planning across the municipalities in Eastern Jutland is in the beginning phase, the strategy formation process in Eastern Jutland is therefore just as much about creating a platform and manifesting the urban region in Eastern Jutland, as about formulating a spatial strategy for the urban region. So far the output of the process has been largely disappointing.

Spatial strategy-making seems today to be more concerned with neo-liberal agendas such as economic development and international competitiveness than spatial issues and environmental concerns. In general, the municipalities believe it is a good idea to create a common vision for the urban region, because they see some obvious advantages from such a vision. At the same time, the municipalities stress that they are capable of carrying out spatial planning themselves, and they raise concerns that the process might lead to increased centralisation and restriction of the municipalities' self-government.

The municipalities and the Ministry of the Environment both have an ambivalent approach to the strategy formation process in Eastern Jutland. The municipalities highlight the opportunity to influence future infrastructure investments as the main reason for participating in the strategy formation process. It is, however, not sufficient only to discuss future infrastructure investments, if the spatial problems in Eastern Jutland are to be solved. There is a need to link urban development to infrastructure investments. It is therefore absolutely essential that the strategic spatial plan for Eastern Jutland deals with how to coordinate urban development in Eastern Jutland, even though the municipalities might feel restricted in their self-government.

The Ministry of the Environment and the municipalities agree that there are some problems to be solved. The Ministry of the Environment has initiated a process which has more the character of being help to self-help for the municipalities. The Ministry of the Environment has started the process, but has left the initiative to the municipalities. The municipalities acknowledge the need for a common vision for Eastern Jutland, but would rather talk about future infrastructure investments than regulation of urban development. Investments in infrastructure thus look like the easy solution to the problems in Eastern Jutland, but so far the municipalities have not been able to prioritise some infrastructure investments over others. There is therefore a danger that the discussion about a common vision for Eastern Jutland, which

links infrastructure to urban development, is turned into a discussion about which future infrastructures are needed in Eastern Jutland.

It is questionable how much a common vision is able to change the development patterns in Eastern Jutland, as there is a strong path dependency attached to spatial planning in Denmark. The strong tradition for decentralisation and the municipalities' self-government make it very difficult to enter a discussion about how to solve the spatial problems in Eastern Jutland. Without the institutional power to change the path dependency in Danish spatial planning, the consequence must be that we are moving towards a more and more motorway-based society, as investments in infrastructure (mainly motorways) seems to be the only legitimate solution to the spatial problems in Eastern Jutland. In this perspective, strategy-making in Eastern Jutland merely turns into lobbyism for infrastructure investments.

## 5. Conclusion

In this forum, little argumentation is probably needed as to why it is important to think strategically about how we are to spatially organise ourselves in the future. However, decisions on how to link future infrastructure investments to future urban development in order to minimize the transport needs and encourage more sustainable forms of transport seems, in the case of Eastern Jutland, to be very hard to reach.

In the Copenhagen case on the contrary, an environmental impact assessment (according to law number 316 of May 5<sup>th</sup> 2004) was carried out of the environmental consequences of the Fingerplan of 2007 compared to a '0-alternative'. This was done in a 12 year and 30 year perspective, respectively. The summed up conclusion of this environmental assessment was:

*"Overall, the Fingerplan of 2007 is estimated to have mainly positive environmental effects. The compliance with global environmental aims (for instance reduction of the CO<sub>2</sub>-emission) can however in certain cases potentially be conflicting with local environmental aims (for instance limitation of the 'noise-pollution' in dense urban areas). The Fingerplan's specific environmental consequences will generally dependent on how the overall frames are realized and complied with in the municipal planning." (Ministry of the Environment 2007a – authors' translation)*

The process behind the Fingerplan of 2007 shows that it is possible to include environmental concerns and that formalised discussions on the 'challenges to climate change' are taking place in other areas of the Danish planning system. The rationality behind this assessment is probably that it is required by Danish law. However, such requirements do not apply to the case of Eastern Jutland, as the vision for the urban region is not a legally required planning document.

We can only speculate on why more systematic environmental concerns have not been brought into the strategy formation process in Eastern Jutland. Perhaps, the participants do not want the process to end up with a national planning directive and thereby a subsequent environmental assessment will not be required. One could also highlight more pragmatic reasons. Eastern Jutland might simply not be able to deal with the future challenges the urban region are facing in relation to climate change and reduction of CO<sub>2</sub>-emissions.

A process where all municipalities in an urban region get together in order to produce a vision for how their urban region is to look in the future seems to be the right forum to have such a discussion. And still, the output of the process has so far been largely disappointing. Planners with expertise in strategy formation processes or political scientists, experts in governance networks, will no doubt be able to find hundreds of explanations as to why the process in Eastern Jutland turned out as it did. We have highlighted some of them in this paper.

What history seems to teach us is that without specific persons dedicated to the process, persons with intellectual and imaginative power and strategic actors and leaders (Healey 2007) a strategic frame will never gain mobilising power across the more and more complex governance landscape attached to an urban region. Without this support a strategic frame will never be implemented and have the potential to shape spatial structures in society. Gaining this support in relation to climate change issues remains a challenge for the future, not only in Eastern Jutland or Copenhagen, but in most urban regions across the world.

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